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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,178	04/13/2004	Jeffrey A. Hudson	03RE098/YOD REEL:0047	3713
7590 02/09/2006			EXAMINER	
Alexander M. Gerasimow Allen-Bradley Company, LLC 1201 South Second Street Milwaukee, WI 53204-2496			VERBITSKY, GAIL KAPLAN	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,178

Applicant(s)

HUDSON, JEFFREY A.

Examiner

Gail Verbitsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/16/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 13-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7-9 is/are rejected.
- 7) ☒ Claim(s) 3,5 and 10-12 is/are objected to.
- 8) ☒ Claim(s) 13-22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 6, 8-9 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Matlock et al. (U.S. 20040263342) [hereinafter Matlock] in view of the Prior Art by Gates et al. (U.S. 20040188674) [hereinafter Prior art], Murata et al. (U.S. 6639505) [hereinafter Murata] and Gramsamer et al. (U.S. 20040091017) [hereinafter Gramsamer].

Matlock discloses in Fig. 3 a device in the field of applicant's endeavor comprising an electrical machine winding, inherently, having a conductor at least partially surrounded by a winding insulation. A winding temperature sensor 24c can be a resistance element (RTD) that monitors the winding condition, and thus, the winding insulation condition (paragraph [0042]), by measuring its temperature (resistance corresponding to temperature) and provides a warning of a degrading trend or electrical condition (paragraph [0043]). This would imply that the sensor 24c is configured to receive an input signal from the winding insulation and provide an output signal corresponding to the winding insulation condition. It is, inherent, that the resistance sensor has insulation.

Matlock does not explicitly teach the particular insulation system completely enclosing the resistor element, the particular (approximately equal) capacitance per unit relationship between the resistance insulation and the winding insulation, as stated in claim 1, with the remaining limitations of claim 2.

Prior art by Gates states that the windings are insulated with SiCO₂ (silica) known to have a dielectric constant of approximately 4 (paragraph [0007]) (thus, approximately 3 and 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device, disclosed by Matlock, so as to have an insulation to insulate the windings made of silica, as taught and known by Prior Art, in order to have an insulation capable to protect the windings of stress voltage.

Murata discloses in Fig. 2 a temperature sensor/ detector to measure temperature to transmit a signal corresponding to the temperature via a lead. The device having an insulation system comprising a dielectric silica (SiO₂, inherently, known to have a dielectric constant approximately 4, and, thus, approximately 3 and 6) known insulation 5 covering a resistive element (thermistor) 3.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Matlock, so as to have an insulation system made of silica to insulate the resistive element from the winding, as taught and known by Murata, in order to protect the device from unexpected short circuit, and thus, failure, due to the electrically conductive resistive element.

Gramsamer discloses a device in the field of applicant's endeavor wherein; a temperature-sensing resistor (thermistor) 15 is completely encased in an electrical insulation 16.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Matlock, so as to completely

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encase the detector into insulation system/ material, as taught by Gramsamer, so as to avoid any possible short circuit and thus, damage to the detector.

With respect to claims 1 and 6: please note that the same materials have the same thermophysical and electrical/ dielectric properties. This would imply, that the silica insulation system over the resistor element of the above combined references and the silica insulation over the windings of the above combined references would possess the same properties, and thus, would have approximately equal capacitance per unit, said capacity is known to be related (proportional) to their dielectric capacity. This would also suggest that the capacitance of the silica insulation, since it has the same properties as the insulation disclosed by applicant, would be of sufficient magnitude to sustain a voltage stress, etc., as the insulation described by applicant in claim 6.

With respect to claims 7-8: having the insulation system of the detector and the insulation of the winding as claimed by applicant, would suggest that the partial discharge would follow the Paschen's Law, and that the voltage stress level would be a function of temperature of the air voids, since the combination of references teaches the device as claimed by applicant.

Also, it is very well known in the art that when the insulation is degrading electrically, and air gaps (voids) develop between solid pieces of the insulation, the insulation is subject to partial discharge in the air voids at a breakdown voltage that follows by Paschen's Law. (See for example, Lanoe et al. (U.S. 4751488), col. 1, lines 20-38 or Tanigaki et al. (U.S. 4547769), abstract and col. 2, lines 25-34).

Allowable Subject Matter

3. Claims 3-5, 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection necessitated by Applicant's arguments. Applicant states that the references do not teach the particular capacitance per area and the particular dielectric constants, as stated in claims 1, 2, 6, 9, so as to enable the device withstand the particular stress level, as stated in claims 6-8. Since Applicant disagree with the Examiner's statements that the particular insulation material (having the particular dielectric constants and the particular capacitance) is optimum choice, the Examiner presents new references to show the limitations of claim 1:

Murata teaches to insulate temperature sensing resistor element in silica. Prior art by Gates teaches to insulate windings to silica. Therefore, the combination of Murata and Prior art teaches to insulate the resistor element and the windings in the same dielectrically insulating material, and, thus, having the same/ equal dielectric properties, as required by claim 1, because, it is very well known that the same materials have the same thermophysical and electrical/ dielectric properties. This would imply, that the silica insulation system over the resistor element of the above combined references and the silica insulation over the windings of the above combined references would possess the same properties, and thus, would have approximately equal capacitance per unit, said capacity is known to be related (proportional) to their dielectric capacity. This would also suggest that the capacitance of the silica insulation, since it has the same properties as the insulation disclosed by applicant, would be of sufficient magnitude to sustain a voltage stress, etc., as the insulation described by applicant in claim 6.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Chu discloses a device in the field of applicant's endeavor. Chu states that it is very well known in the art (col. 1) that temperature of an electrical winding is measured by a resistive element (RTD) embedded in the winding. Chu discloses in Figs. 2-3 a temperature sensor (thermistor/ resistive element) 33 placed next to a winding 30 with a winding insulation 43. A current (input signal) is passed through the sensor 34. The voltage across (output signal) leads 38, 39 provides indication of temperature of the winding insulation. Chu states that the electrical insulation prevents shorting across the winding or to adjacent the winding (col. 3, lines 35-37). This would imply, that a thinning of the insulation, voids (air voids) in the insulation and low dielectric properties of the insulation would cause a short circuit.

Gates et al. (U.S. 20040188674) disclose a device in the field of applicant's endeavor comprising an insulation of SiCOH over the windings. This particular insulation has low dielectric constant (approximately 3), high breakdown voltage, low leakage current and low oxygen permeation.

DE 3241147A teaches to use a resistance thermometer to measure temperature of a winding of an electrical machine. The thermometer is enclosed in a single layer of insulating bandage (insulation system)

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky
Primary Patent Examiner, TC 2800



January 26, 2006